

WHAT IS CLAIMED IS:

1. An electrical contactor for connecting and disconnecting an electrical power source to an electrical device, wherein the electrical power source is electrically connected to a line terminal having a line terminal electrical contact and the electrical device is electrically connected to a load terminal having a load terminal electrical contact, comprising:

(a) an electromagnetic element electrically coupled to the electrical power source for generation of a magnetic field;

(b) a slidable carrier having a distal end and a proximal end;

(c) an armature affixed to said distal end of said slidable carrier, said armature attracted to said electromagnetic element upon generation of said magnetic field;

(d) a blade affixed to said proximal end of said slidable carrier and having a first electrical contact aligned with the line terminal electrical contact and a second electrical contact aligned with the load terminal electrical contact, said first and second electrical contacts electrically connecting the electrical power source to the electrical device upon generation of said magnetic field and electrically disconnecting the electrical power source to the electrical device upon removal of said magnetic field; and

(e) a positive temperature coefficient resistivity element electrically coupled to said blade and the load terminal for providing arc suppression during the opening and closing of said first and second electrical contacts aligned with the line and load terminal electrical contacts.

1 2. The electrical contactor of claim 1, wherein said blade is asymmetrical
2 thereby providing sequential contact and separation between said first
3 electrical contact and the line terminal electrical contact and said second
4 electrical contact and the load terminal electrical contact.

1 3. The electrical contactor of claim 1 wherein said slidable carrier further
2 comprises an aperture for insertion of a compression spring to ensure
3 contact between said first and second electrical contacts and the line and
4 load terminal electrical contacts upon generation of said magnetic field in
5 said electromagnetic element.

1 4. The electrical contactor of claim 1 wherein said positive temperature
2 coefficient resistivity element comprises a pure metallic material.

1 5. The electrical contactor of claim 1 wherein said positive temperature
2 coefficient resistivity element comprises a conductive polymer.

1 6. The electrical contactor of claim 1 wherein said positive temperature
2 coefficient resistivity element comprises a ceramic material.

1 7. An electrical contactor for connecting and disconnecting an electrical power
2 source to an electrical device, wherein the electrical power source is electrically
3 connected to a line terminal and the electrical device is electrically connected to a
4 load terminal having an electrical contact, comprising:

5 (a) an electromagnetic element electrically coupled to the electrical power
6 source for generation of a magnetic field;

7 (b) a slidable carrier having a distal end and a proximal end;

8 (c) an armature affixed to said distal end of said slidable carrier, said
9 armature attracted to said electromagnetic element upon generation of said
10 magnetic field;

11 (d) a blade affixed to said proximal end of said slidable carrier, said
12 blade having a first electrical contact aligned with a stationary electrical contact and
13 a second electrical contact aligned with the load terminal electrical contact, said first
14 and second electrical contacts electrically connecting the electrical power source to
15 the electrical device upon generation of said magnetic field and electrically
16 disconnecting the electrical power source to the electrical device upon removal of
17 said magnetic field; and

18 (e) a positive temperature coefficient resistivity element electrically
19 coupled to said stationary electrical contact and said load terminal electrical contact
20 for providing arc suppression during the opening and closing of said first and
21 second electrical contacts and said stationary electrical contact and the load
22 terminal electrical contact.

1 → 8. The electrical contactor of claim 7 wherein said blade is asymmetrical
2 thereby providing sequential contact and separation between said first
3 electrical contact and said stationary electrical contact and said second
4 electrical contact and the load terminal electrical contact.

1 9. The electrical contactor of claim 7 wherein said slidable carrier further
2 comprises an aperture for insertion of a compression spring to ensure
3 contact between said first and second electrical contacts and said stationary
4 electrical contact and the load terminal electrical contact upon generation of
5 said magnetic field in said electromagnetic element.

1 10. The electrical contactor of claim 7 wherein said positive temperature
2 coefficient resistivity element comprises a pure metallic material.

1 11. The electrical contactor of claim 7 wherein said positive temperature
2 coefficient resistivity element comprises a conductive polymer.

1 12. The electrical contactor of claim 7 wherein said positive temperature
2 coefficient resistivity element comprises a ceramic material.

1 13. An electrical contactor for connecting and disconnecting an electrical power
2 source to an electrical device, wherein the electrical power source is electrically
3 connected to a line terminal and the electrical device is electrically connected to a
4 load terminal having an electrical contact, comprising:

5 (a) an electromagnetic element electrically coupled to the electrical power
6 source for generation of a magnetic field;

7 (b) a slidable carrier having a distal end and a proximal end;

8 (c) an armature affixed to said distal end of said slidable carrier, said
9 armature attracted to said electromagnetic element upon generation of said
10 magnetic field;

11 (d) a spring strap having an electrical contact affixed thereto;

12 (e) a blade affixed to said proximal end of said slidable carrier, said
13 blade having a first electrical contact aligned with said spring strap electrical contact
14 and a second electrical contact aligned with the load terminal electrical contact, said
15 first and second electrical contacts electrically connecting the electrical power
16 source to the electrical device upon generation of said magnetic field and electrically
17 disconnecting the electrical power source to the electrical device upon removal of
18 said magnetic field;

19 (f) said spring strap propelling said electrical contact upwardly thereby
20 providing sequential contact and separation between said first electrical contact and
21 said spring strap electrical contact and said second electrical contact and the load
22 terminal electrical contact; and

23 (g) a positive temperature coefficient resistivity element electrically

24 coupled to said spring strap and said load terminal electrical contact for providing
25 arc suppression during the opening and closing of said first and second electrical
26 contacts and said spring strap electrical contact and the load terminal electrical
27 contact.

1 14. The electrical contactor of claim 13 wherein said slidable carrier further
2 comprises an aperture for insertion of a compression spring to ensure
3 contact between said first and second electrical contacts and spring strap
4 electrical contact and the load terminal electrical contact upon generation of
5 said magnetic field in said electromagnetic element.

1 15. The electrical contactor of claim 13 wherein said positive temperature
2 coefficient resistivity element comprises a pure metallic material.

1 16. The electrical contactor of claim 13 wherein said positive temperature
2 coefficient resistivity element comprises a conductive polymer.

1 17. The electrical contactor of claim 13 wherein said positive temperature
2 coefficient resistivity element comprises a ceramic material.